## REMARKS

Applicant has made claims 3 and 4 independent by re-writing it to include all of the limitations claim 1 from which they depend.

Applicant has added claim 24 to incorporate the limitations of original claim 1 and claim 2. The novelty and unobviousness of that claim will be discussed below.

claim 10 has been amended to be made independent by incorporating the limitations of original claim 1. The novelty and unobviousness of the claim will be discussed below.

The rejection of claims 1, 5 and 14 as anticipated by Mamin et al. is respectfully traversed. Claim 1 has been amended to call for at least one lens for focusing the incident light beam. The Examiner has indicated that claims 3 and 4 are allowable because the prior art fails to disclose the means for adjusting the size, shape of the incident beam spot. But the art does not show any device that use a lens to focus the incident beam to spot sizes of 8 μm or less. The claim defines an atomic force microscope that is novel and unobvious over Mamin et al. who obtained their small spot size solely by use of optical fibers, without any lens to reduce the optical spot size (column 5, lines 49-53). Thus, Mamin not only does not anticipate the invention but teaches away from it in avoiding a reduction in the optical spot size.

The rejection of remaining claims 1, 24, 6-13 and 15-21 on 35 USC § 103 is respectfully traversed. These claims are further removed from the



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reference than claim 1in calling for various instrumentality for dealing with a focused spot.

Referring to claim 24, which, as indicated, is a combination of claims 2 and 1, applicants submit that the art does not teach one to combine a cantilever having a length of less than 30 μm with a spot size of 8 μm or less. The examiner cites Amer et al. for showing cantilevers with a dimension less than or equal to 30 μm but in fact the length of the cantilevers in Amer et al. are between 100 and 200 micros (micrometers), which applicants' specification describes as conventional (page 2, lines 14-19). It is the width of the Amer et al., cantilever that is in the range of between 5 and 30 microns (column 4, lines 49-52). In comparison, as indicated at page 10, lines 292, 294 and 300 of applicants' specification, exemplary cantilevers have widths of 3 μm, 2 μm and 12 μm. Even the intermediate-sized cantilevers to which the invention can be applied has a width of 20 μm (page 10, line 303). As Mamin et al., Amer et al. also uses a single mode optical fiber. Amer et al., however, focuses the output via their lens but gives no dimension for the spot size. Even if a spot size of less than 8 micrometers is produced by Amer et al., there is no suggestion of the combination such a spot size with a cantilever length of less than 30 μm.

Claim 10 has been written in independent form and additionally calls for the lens to focus the incident beam normal to the cantilever. As explained in the specification on page 7, lines 205 to 211, this has several advantages including minimizing light loss by shadowing on the edge of the chip, and is especially important for the high numerical aperture systems that are used by the invention to generate these small spot sizes, because a cone of light with a

large opening angle must reach the cantilever. This is not at all suggested by Park et al. or any of the other references. In fact, Park et al. teach away from the invention by calling for viewing the probe and sample at an oblique angle (column 13, line 45).

Applicants believe that the claims are in condition for allowance and respectfully request a Notice for Allowance.

Respectfully submitted,

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